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Building for the Future:

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The 1984 ANNUAL REPORT of The Agricultural Experiment Station

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Michigan Agricultural Experiment Station **Building for the Future**

Report prepared under the direction of Robert G. Gast, director of the Michigan Agricultural Experiment Station, and administrative associate Doreen Woodward. Design by Terry O'Connor, art director; editing and production by Laurie Wink, information coordinator, ANR Information Services.

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Director's Message

Building for the Future

Michigan agriculture has undergone dramatic changes in the past century. The Michigan Agricultural Experiment Station, working with other experiment stations across the nation, has played a major role in creating these changes.

As a result of new technologies developed by AES scientists and increased management skills of producers, agriculture has experienced unparalleled growth in productivity.

Some suggest that, because we now have surpluses of certain agricultural commodities, we need less agricultural research. But, if we are to keep American agriculture from losing its competitive edge in the world market, as other U.S. industries have done, we need continued and expanded investments in research.

All is not well with agriculture. The rate of increase in productivity has begun to decline. Concerns have been raised regarding social and environmental impacts of certain farm production practices, the nutritional quality of food products, and the depletion of soil and water resources.

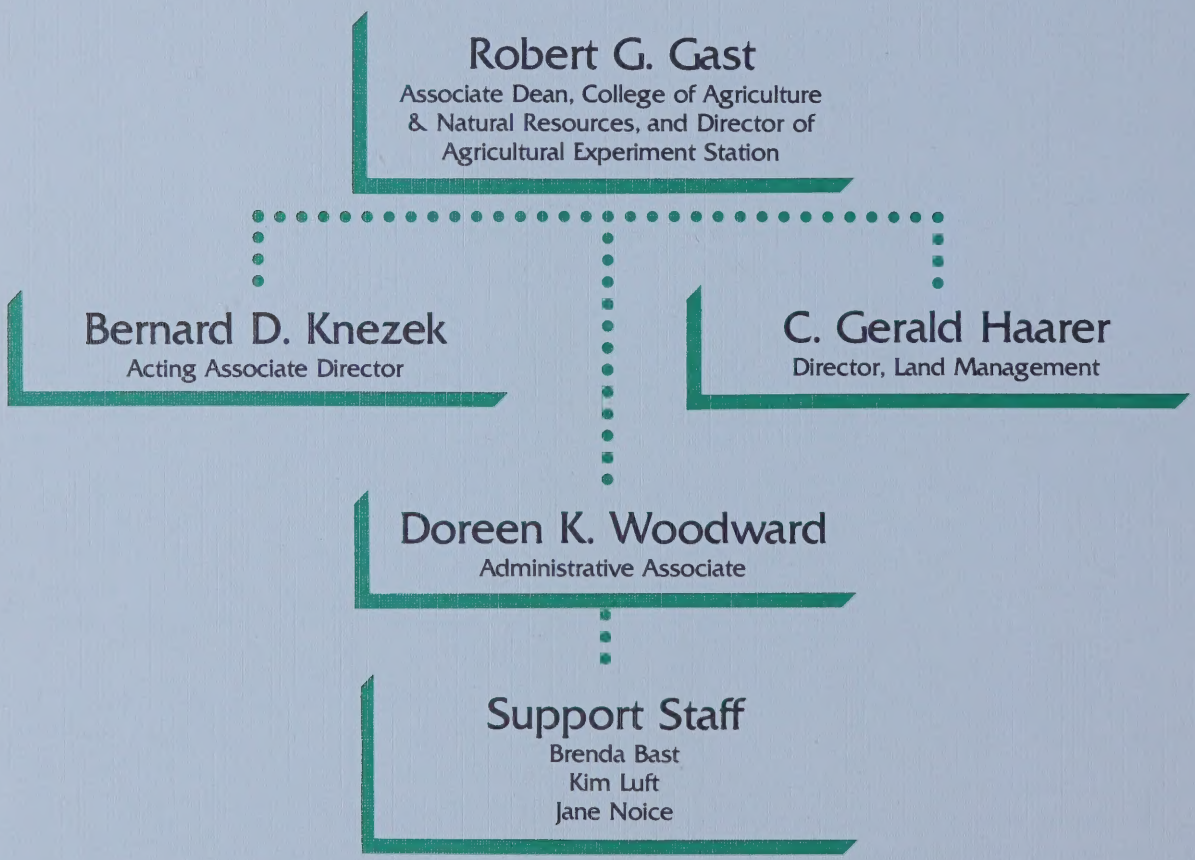
We have to become more aggressive in examining and addressing these and other issues confronting agricultural and natural resources industries. New and emerging biotechnologies, coupled with expanding interdisciplinary research approaches, appear promising as means of meeting future challenges.

Scientific developments occuring in Michigan State University laboratories, greenhouses, field plots and natural areas are chronicled in various publications, such as the Michigan Agricultural Experiment Station's quarterly magazine, **Futures,** and many research reports prepared by AES scientists.

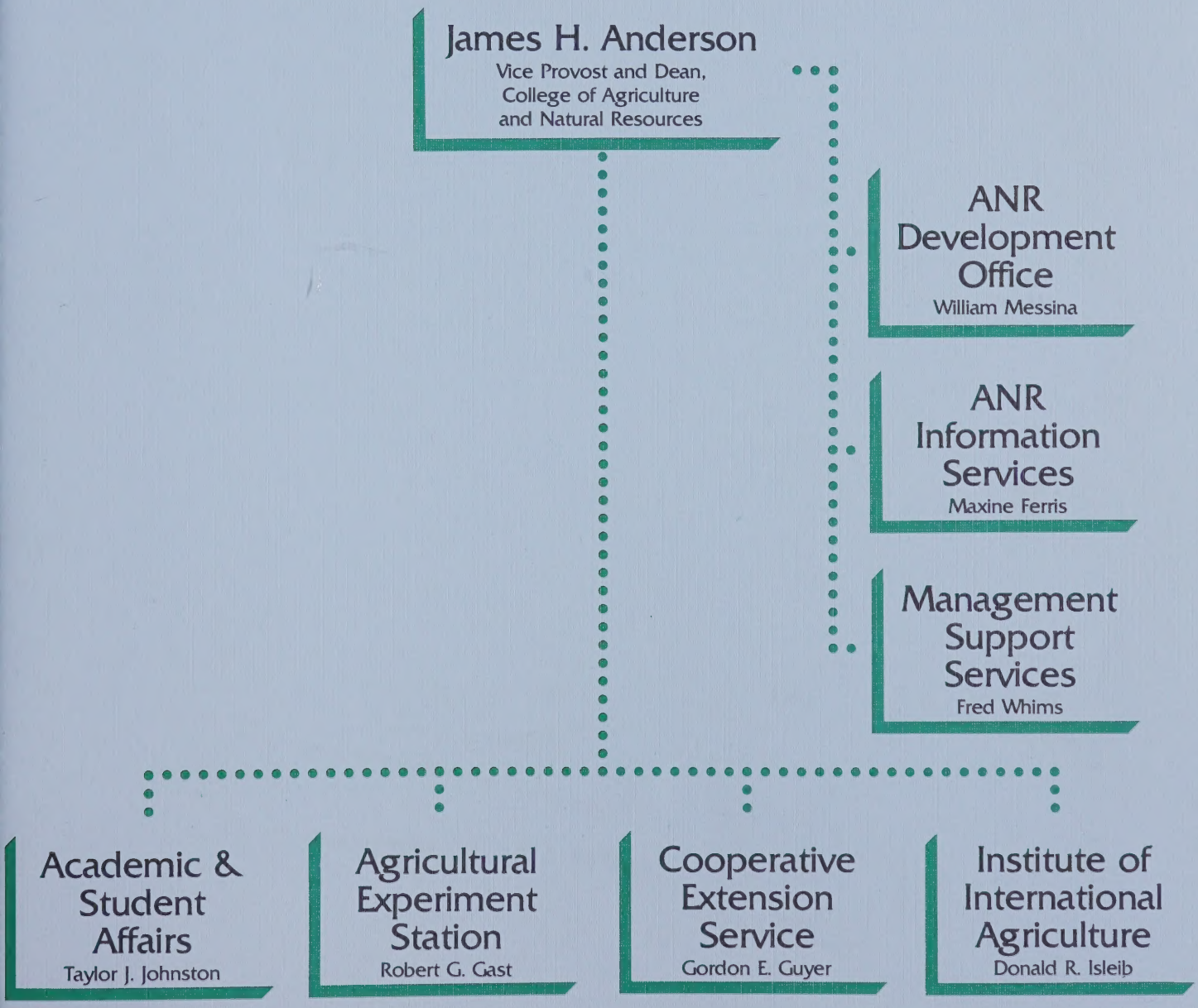
This annual report of the Michigan Agricultural Experiment Station is intended to serve as a benchmark of how we have used our resources in the past, so we can more effectively judge how to use resources in the future.

Robert G. Gast
Director
Michigan Agricultural
Experiment Station

Agricultural Experiment Station
Organizational Flow Chart



College Of Agriculture And Natural Resources
Dean's Office



AES Affiliated Deans, Directors, and Unit Administrators

As of 10-1-84

Deans

James H. Anderson
Vice Provost and Dean,
College of Agriculture and Natural Resources
(517) 355-0233

Lois Lund
Dean,
College of Human Ecology
(517) 355-7714

Richard Byerrum
Dean,
College of Natural Science
(517) 355-4473

Gwen Andrew
Dean,
College of Social Science
(517) 355-6675

John Tasker
Dean,
College of Veterinary Medicine
(517) 355-6509

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Associate Dean and Director,
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(517) 355-0123

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Associate Dean and Director,
Cooperative Extension Service
(517) 355-2308

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Associate Dean and Director,
Institute of International Agriculture
Agriculture and Natural Resources
(517) 355-0174

Taylor J. Johnston
Associate Dean and Director
Academic Programs
(517) 355-0234

Unit Administrators

Carroll Wamhoff
Chairperson,
Agricultural and Extension Education
(517) 355-6580

Larry Connor
Chairperson,
Agricultural Economics
(517) 355-4567

Donald Edwards
Chairperson,
Agricultural Engineering
(517) 353-7268

Maynard Hogberg
Chairperson,
Animal Science
(517) 355-8384

Maxine S. Ferris
Manager,
ANR Information Services
(517) 355-1758

Charles Sweeley
Chairperson,
Biochemistry
(517) 353-3257

Edward Klos
Chairperson,
Botany & Plant Pathology
(517) 355-4680

Dale Harpstead
Chairperson,
Crop & Soil Sciences
(517) 355-0262

James Bath
Chairperson,
Entomology
(517) 355-4665

Robert Griffore
Chairperson,
Family & Child Ecology
(517) 355-7680

Niles Kevern
Chairperson,
Fisheries & Wildlife
(517) 353-0647

Thayne Dutson
Chairperson,
Food Science & Human Nutrition
(517) 355-8475

Larry Tombaugh
Chairperson,
Forestry
(517) 355-0093

John Kelly
Chairperson,
Horticulture
(517) 355-5191

Jane Stolper
Chairperson,
Human Environment & Design
(517) 355-7712

Bernard Knezek
Director of
Agricultural and Natural Resources Programs
for Kellogg Biological Station
(517) 353-4569

Edward Mather
Chairperson,
Large Animal Clinical Sciences
(517) 353-9710

C. Gerald Haarer
Director,
Land Management
(517) 355-3272

Paul Magee
Chairperson,
Microbiology & Public Health
(517) 355-6465

Chester Mackson
Director,
School of Packaging
(517) 353-6462

Lewis Moncrief
Chairperson,
Park and Recreation Resources
(517) 353-0822

Adalbert Koestner
Chairperson,
Pathology
(517) 353-9160

Fumio Matsumura
Director,
Pesticide Research Center
(517) 353-9430

Harvey Sparks
Chairperson,
Physiology
(517) 355-4488

Hans Kende
Acting Director,
MSU-DOE Plant Research Lab
(517) 353-2270

Jon Bartholic
Chairperson,
Resource Development;
Coordinator,
Center for Remote Sensing;
Director,
Institute for Water Research
(517) 355-3421

Marvin Olsen
Chairperson,
Sociology
(517) 355-6632

Agricultural Experiment Station

Outlying Stations

10-1-84

1. East Lansing Field Research Facilities

109 Agriculture Hall
East Lansing, MI 48824-1039
Phone: (517) 355-3272

C. Gerald Haarer
Director, Land Management

2. Upper Peninsula Experiment Station

Chatham, MI 49816
Phone: (906) 439-5114

Art Liubakka
Operations Supervisor

3. Graham Horticultural Experiment Station

2989 Lake Michigan N.W.
Grand Rapids, MI 49504
Phone: (616) 453-1708

John Gilmore
Resident Manager

4. Dunbar Forest Experiment Station

Rt. 1
Box 179
Sault St. Marie, MI 49783
Phone: (906) 632-3932

John Bright
Resident Forester

5. Lake City Experiment Station

Lake City, MI 49651
Phone: (616) 839-4608

Doug Nielsen
Farm Manager

6. W.K. Kellogg Biological Station and W.K. Kellogg Forest

3700 E. Gull Lake Drive
Hickory Corners, MI 49060
Phone: (517) 353-9445; (616) 671-5117
or (616) 731-4597

Bernie Knezek
Director, Agricultural Programs

George Lauff
Director, Programs and Development

Tom Stadt
Senior Resident Forester

7. Muck Soils Research Farm

Rt. 3
9422 E. Herbison Road
Laingsburg, MI 48848
Phone: (517) 641-4062

Ronald Gnagey
Field Research Technician

8. Fred Russ Forest Experiment Station

Decatur, MI 49046
Phone: (616) 782-5652

Greg Kowalewski
Resident Forester

9. Sodus Horticultural Experiment Station

4485 River Road
Sodus, MI 49126
Phone: (616) 925-3030

Arnold Hafer
Operations Supervisor

10. Montcalm Experimental Farm

Rt. 1
Lakeview, MI 48850
Phone: (517) 365-3473

Theron Comden
Consultant

11. Trevor Nichols Research Complex

Rt. 4, 6227 M-89
Fennville, MI 49408
Phone: (517) 355-9615 or (616) 561-5040

Matthew Daly
Farm Manager

12. Saginaw Valley Beet a Bean Research Farm

3066 S. Thomas Road
Saginaw, MI 48603
Phone: (517) 781-1160

Paul Horny
Farm Manager

13. Clarksville Horticultur Experiment Station

Box 77A
9302 Portland Road
Clarksville, MI 48815
Phone: (517) 355-0239

Gerald Skeltis
Farm Manager

14. Northwest Michigan H Experiment Station

6686 Center Highway
Traverse City, MI 49684
Phone: (616) 946-1510

Chas. Kesner
Supervisor

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List of AES Scientists By Department

Agricultural Economics

Ph: (517) 355-4563

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Allen, John W.	12	0.10	0.15	0.00	0.00	0.75	Marketing
Black, J. Roy	12	0.30	0.50	0.20	0.00	0.00	Farm Management
Bonnen, James T.	12	0.15	0.85	0.00	0.00	0.00	Public Policy
Ferris, John N.	12	0.15	0.20	0.65	0.00	0.00	Outlook & Prices
Gustafson, Robert L.	12	0.05	0.95	0.00	0.00	0.00	Econometrics
Hamm, Larry G.	14	0.10	0.25	0.65	0.00	0.00	Dairy Mktg. & Policy
Hardesty, Sermin	14	0.20	0.80	0.00	0.00	0.00	Ag. Finance
Harsh, Stephen B.	12	0.15	0.25	0.60	0.00	0.00	Farm Management
Hepp, Ralph E.	12	0.05	0.10	0.85	0.00	0.00	Farm Management
Johnson, Glenn L.	12	0.35	0.65	0.00	0.00	0.00	Prod. Econ./Farm Mgt.
Libby, Lawrence W.	12	0.20	0.20	0.60	0.00	0.00	Res. Econ./Policy
Manderscheid, Lester	12	0.80	0.20	0.00	0.00	0.00	Price Analysis
McBride, Glynn C.	12	0.10	0.15	0.75	0.00	0.00	Dairy Marketing
Nott, Sherrill B.	12	0.15	0.20	0.65	0.00	0.00	Farm Mgmt. (Dairy)
Pierson, Thomas R.	12	0.30	0.20	0.50	0.00	0.00	Marketing
Ricks, Donald J.	12	0.10	0.15	0.75	0.00	0.00	Marketing
Riley, Harold M.	12	0.20	0.80	0.00	0.00	0.00	Mktg./Econ. Dvlpt.
Robison, Lindon J.	13	0.10	0.90	0.00	0.00	0.00	Production Econ.
Schmid, A. Allan	12	0.40	0.60	0.00	0.00	0.00	Land Economics/ Public Policy
Schwab, Gerald D.	12	0.30	0.20	0.50	0.00	0.00	Farm Management
Shaffer, James D.	12	0.30	0.20	0.50	0.00	0.00	Mktg./Ag. Policy
Sorenson, Vernon L.	12	0.15	0.30	0.55	0.00	0.00	Agr. Policy Trade
Stevens, Robert D.	12	0.15	0.40	0.00	0.00	0.45	Ag. Dev./Hlth. Econ.
Thompson, Stanley	13	0.10	0.90	0.00	0.00	0.00	Marketing
Vanravenswaay, Eileen	13	0.30	0.70	0.00	0.00	0.00	Pub. Pol./Food Sfty.
TOTALS:		**5.25**	**10.80**	**7.75**	**0.00**	**1.20**	

Agricultural Engineering

Ph: (517) 355-4720

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Bakker-Arkema, Fred	12	0.30	0.70	0.00	0.00	0.00	Grain Draw/Storage
Bickert, William G.	12	0.00	0.20	0.80	0.00	0.00	Livestock Fac./Env.
Braits, Vincent F.	14	0.10	0.20	0.00	0.50	0.20	Soil & Wtr./Intl. Pgm.
Brook, Roger C.	13	0.00	0.25	0.75	0.00	0.00	Post-Harv. Handling
Burkhardt, Thomas H.	12	0.60	0.25	0.00	0.00	0.15	Forestry Engineer
Cargill, Burton F.J.	12	0.00	0.25	0.75	0.00	0.00	Harv. and Mech.
Esmay, Merle L.	12	0.40	0.50	0.00	0.00	0.10	Structure/Environ.; Int'l. Programs
Gerrish, John B.	13	0.40	0.50	0.00	0.00	0.10	Elec. Robotics
Loudon, Theodore L.	13	0.00	0.45	0.55	0.00	0.00	Pollut. Mgmt./Irr.
Merva, George E.	12	0.40	0.60	0.00	0.00	0.00	Irrigation/Drng.
Mrozowski, Timothy	14	0.80	0.20	0.00	0.00	0.00	Bldg. Construction
Person, Howard L.	14	0.00	0.30	0.70	0.00	0.00	Ag. Structure
Segerlind, Larry L.	12	0.50	0.50	0.00	0.00	0.00	Finite Elem. Anal.
Srivastava, Ajit K.	13	0.30	0.60	0.00	0.00	0.10	Hydro. Computer Assisted Design
Steffe, James F.	13	0.40	0.35	0.00	0.00	0.25	Food Engineering
Surbrook, Truman C.	13	0.15	0.25	0.00	0.00	0.60	Elec. Tech. in Agr.
Van Ee, Gary R.	14	0.25	0.65	0.00	0.00	0.10	Fruit/Veg. Mech.
Wilkinson, Robert H.	13	0.15	0.15	0.60	0.00	0.10	Human Factors Eng.
TOTALS:		**4.75**	**6.90**	**4.15**	**0.50**	**1.70**	

Agriculture & Extension Education

Ph: (517) 355-6580

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Cooper, Colleen R.	14	0.40	0.30	0.30	0.00	0.00	Faculty Development
TOTALS:		**0.40**	**0.30**	**0.30**	**0.00**	**0.00**	

Animal Science

Ph: (517) 355-8383

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Aulerich, Richard J.	12	0.00	0.75	0.25	0.00	0.00	Fur Bearing Animals
Balander, Richard J.	14	0.10	0.40	0.50	0.00	0.00	Avian Phys./Repro.
Bergen, Werner G.	12	0.20	0.80	0.00	0.00	0.00	Rum. Nutr./Grth. Biol.
Bucholtz, Herbert F.	13	0.00	0.20	0.80	0.00	0.00	Dairy Nutri./Mgmt.
Bursian, Steven	13	0.00	1.00	0.00	0.00	0.00	Avian Phys./Toxic.
Chang, Timothy S.	12	0.15	0.85	0.00	0.00	0.00	M&PH/Poultry Path.
Coe, Paul H.	14	0.00	0.20	0.00	0.00	0.80	Animal Health
Coleman, Theo H.	12	0.75	0.25	0.00	0.00	0.00	Avian Genet./Mgmt.
Cook, Robert M.	12	0.20	0.80	0.00	0.00	0.00	Rum. Nutrition
Dukelow, W. Richard	12	0.00	0.25	0.00	0.00	0.75	Physiology
Emery, Roy S.	12	0.20	0.60	0.00	0.00	0.20	Rum. Nutrition
Erickson, Russel	13	0.00	0.20	0.00	0.00	0.80	Dairy Farm Mgmt.
Ferris, Theodore A.	14	0.00	0.20	0.80	0.00	0.00	Breeding
Flegal, Cal J.	12	0.10	0.35	0.55	0.00	0.00	Avian Nutr./Mgmt.
Fogwell, Ralph L.	13	0.40	0.60	0.00	0.00	0.00	Physiology
Gill, John L.	12	0.50	0.50	0.00	0.00	0.00	Statistics Genet.
Hawkins, David R.	12	0.60	0.20	0.00	0.00	0.20	Beef Cattle Nutr.
Ireland, James J.	13	0.20	0.80	0.00	0.00	0.00	Physiology
Magee, William T.	12	0.30	0.50	0.00	0.00	0.20	Animal Breeding
Mao, Ivan Ling	12	0.30	0.70	0.00	0.00	0.00	Breeding
McGilliard, Lon D.	12	0.50	0.50	0.00	0.00	0.00	Breeding
Merkel, Robert A.	12	0.50	0.25	0.00	0.00	0.25	Growth Biology
Miller, Elwyn R.	12	0.05	0.80	0.00	0.00	0.15	Swine Nutrition
Polin, Donald	12	0.25	0.75	0.00	0.00	0.00	Avian Nutrition
Rahn, Allan P.	12	0.00	0.20	0.65	0.00	0.15	Mgmt. Agr. Econ.
Ringer, Robert K.	12	0.15	0.25	0.00	0.00	0.60	Avian Phys./Toxic.
Ritchie, Harlan D.	12	0.00	0.10	0.90	0.00	0.00	Beef Ctl. Nutr. Mgmt.
Speicher, John A.	12	0.00	0.20	0.80	0.00	0.00	Dry Farm Mgmt. Spec.
Stowe, Howard D.	13	0.00	0.45	0.00	0.00	0.55	Animal Nutrition
Thomas, J. William	12	0.10	0.40	0.50	0.00	0.00	Rum. Nutrition
Tucker, H. Allen	12	0.20	0.60	0.00	0.20	0.00	Phys./Lactation

Animal Science (Continued)

Ullrey, Duane E.	12	0.40	0.60	0.00	0.00	0.00	Animal Nutrition
Yokoyama, Melvin T.	13	0.00	1.00	0.00	0.00	0.00	Animal Nutr./Micro.
TOTALS:		**6.15**	**16.25**	**5.75**	**0.20**	**4.65**	

Biochemistry

Ph: (517) 355-1600

		FTE Percent					
Name	**Rank**	**T**	**R**	**E**	**G**	**O**	**Area of Interest**
Anderson, Richard L.	12	0.20	0.50	0.00	0.00	0.30	Carbohy. Metab.
Aust, Steven D.	12	0.00	0.45	0.00	0.00	0.55	Toxicology
Davis, Ronald L.	14	0.20	0.60	0.00	0.00	0.20	Molec. Biology
Deal, William C., Jr.	12	0.00	0.40	0.00	0.00	0.60	Phys. Biochem.
Dodgson, Jerry B.	13	0.00	0.18	0.00	0.00	0.82	Molec. Biology
Fraker, Pamela J.	12	0.00	0.44	0.00	0.00	0.56	Immunology
Holland, John F.	12	0.00	0.58	0.00	0.00	0.42	Anal. Biochem.
Kaguni, Jon M.	14	0.00	0.80	0.00	0.00	0.20	Molec. Biology
Kindel, Paul K.	12	0.20	0.60	0.00	0.00	0.20	Plant Biochem.
Luecke, Richard W.	12	0.00	0.60	0.00	0.00	0.40	Trace Elem. Bio.
Morris, Allan J.	12	0.30	0.50	0.00	0.00	0.20	Molecular Biology
Suelter, Clarence H.	12	0.00	0.40	0.00	0.00	0.60	Enzymology
Tolbert, N. Edward	12	0.16	0.80	0.00	0.00	0.04	Plant Biochem.
Watson, J. Throck	12	0.10	0.27	0.00	0.00	0.63	Analytical Biochem.
TOTALS:		**1.16**	**7.12**	**0.00**	**0.00**	**5.72**	

Botany & Plant Pathology

Ph: (517) 353-4683

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Adams, Gerard C.	14	0.00	0.40	0.60	0.00	0.00	Plant Pathology
Fulbright, Dennis W.	13	0.00	1.00	0.00	0.00	0.00	Wheat Pathology
Good, Norman E.	12	0.00	0.84	0.00	0.00	0.16	Plant Bio. Phys.
Hammerschmidt, Raymond	14	0.00	0.90	0.00	0.00	0.10	Plant Pathology
Hart, John H.	12	0.00	0.60	0.00	0.00	0.40	Plant Pathology
Hart, L. Patrick	13	0.00	0.50	0.50	0.00	0.00	Plant Pathology
Jones, Alan L.	12	0.00	0.50	0.50	0.00	0.00	Plant Pathology
Lacy, Melvyn L.	12	0.00	0.40	0.50	0.00	0.10	Plant Pathology
Lockwood, John L.	12	0.00	0.90	0.00	0.00	0.10	Plant Pathology
Murakishi, Harry H.	12	0.00	0.90	0.00	0.00	0.10	Plant Virol. Path.
Potter, Howard S.	12	0.00	0.40	0.50	0.00	0.10	Plant Pathology
Ramsdell, Donald C.	13	0.00	0.50	0.50	0.00	0.00	Plant Pathology
Safir, Gene R.	13	0.00	0.90	0.00	0.00	0.10	Plant Pathology
Scheffer, Robert P.	12	0.00	0.80	0.00	0.00	0.20	Plant Pathology
Sears, Barbara	14	0.00	0.25	0.00	0.00	0.75	Cytogenetics
Stephens, Christine	13	0.00	0.39	0.61	0.00	0.00	Plant Pathology
Vargas, Joseph M., Jr.	12	0.00	0.50	0.15	0.00	0.35	Plant Pathology
TOTALS:		**0.00**	**10.68**	**3.86**	**0.00**	**2.46**	

Crop & Soil Science

Ph: (517) 355-0262

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Adams, Wayne M.	12	0.25	0.75	0.00	0.00	0.00	Plant Breeding
Boyd, Stephen A.	14	0.25	0.75	0.00	0.00	0.00	Soil Chemistry
Branham, Bruce E.	14	0.25	0.75	0.00	0.00	0.00	Turfgrass Phys.
Chase, Richard W.	12	0.00	0.25	0.75	0.00	0.00	Plant Physiology
Christenson, Donald R.	12	0.00	0.50	0.50	0.00	0.00	Soil Fert. Mgmt.
Cress, Charles E.	12	0.90	0.10	0.00	0.00	0.00	Plant Science
Crum, James	14	0.60	0.25	0.00	0.00	0.15	Soil Class./Genesis
Ellis, Boyd G.	12	0.50	0.50	0.00	0.00	0.00	Soil Fert. Mgmt.

Crop & Soil Science (Continued)

Erickson, A. Earl	12	0.25	0.75	0.00	0.00	0.00	Soil Chem./Phys.
Everson, Everett H.	12	0.25	0.75	0.00	0.00	0.00	Plant Breedings
Foster, Eunice	14	0.85	0.15	0.00	0.00	0.00	Plant Physiology
Freed, Russell D.	13	0.25	0.50	0.00	0.00	0.25	Int. Agron./Plnt. Brdg.
Hesterman, Oran B.	14	0.00	0.25	0.75	0.00	0.00	Corn/Soybean Prod.
Isleib, Thomas G.	14	0.25	0.75	0.00	0.00	0.00	Plant Breeding
Jacobs, Lee W.	12	0.00	0.25	0.75	0.00	0.00	Ext. Environ. Spc.
Kells, James F.	14	0.00	0.40	0.60	0.00	0.00	Weed Science
Kunze, Raymond J.	12	0.50	0.50	0.00	0.00	0.00	Soil Physiology
Leep, Richard H.	13	0.00	0.50	0.50	0.00	0.00	Soil Fert. Prod.
Meggitt, William F.	12	0.10	0.50	0.25	0.00	0.15	Phys./Weed Conl.
Mokma, Delbert L.	13	0.50	0.50	0.00	0.00	0.00	Genesis Classif.
Mortland, Max M.	12	0.50	0.50	0.00	0.00	0.00	Soil Chem. Phys.
Payne, Kenyon T.	12	0.25	0.25	0.00	0.00	0.50	Plant Breeding
Penner, Donald	12	0.20	0.80	0.00	0.00	0.00	Weed Physiology
Pierce, J. Francis	14	0.00	0.50	0.50	0.00	0.00	Soil Mgmt. Sys.
Relcosky, David A.	14	0.25	0.75	0.00	0.00	0.00	Phys. Genetics
Rieke, Paul E.	12	0.00	0.35	0.50	0.00	0.15	Soil Fert. Mgmt.
Ritchie, Joe T.*	12	0.00	0.00	0.50	0.00	0.50	Soil Phys./Plt. Stress
Rossman, Elmer C.	12	0.25	0.75	0.00	0.00	0.00	Plant Brdg./Genet.
Smucker, A.J.M.	12	0.25	0.75	0.00	0.00	0.00	Soil Biophysics
Tesar, Milo B.	12	0.20	0.75	0.00	0.00	0.05	Past/Forage Crops
Tiedje, James M.	12	0.25	0.60	0.00	0.00	0.15	Soil Microbiology
Vitosh, Maurice L.	12	0.00	0.30	0.70	0.00	0.00	Soil Fert. Mgmt.
Warncke, Darryl D.	13	0.00	0.50	0.50	0.00	0.00	Gmhs./Veg. Soil Fert.
TOTALS:		**7.85**	**16.45**	**6.80**	**0.00**	**1.90**	

***Nowlin Professor For Water Research**

Entomology

Ph: (517) 355-4662

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Ayers, George S.	13	0.00	0.10	0.00	0.00	0.90	Pestic. Appl. Sci.
Bird, George W.	12	0.00	0.40	0.50	0.00	0.10	Agr. Nematology
Carlson, John D.	14	0.00	0.20	0.00	0.35	0.45	Agr. Meteorology
Edens, Thomas C.	14	0.00	0.20	0.00	0.00	0.80	Resc. Econ./Sust. Agr.
Gage, Stuart H.	13	0.00	0.50	0.50	0.00	0.00	Env. Sys. Ent. Sur.
Graflus, Edward	13	0.00	0.50	0.50	0.00	0.00	Veg. Ins. Eco. Mgt.
Haynes, Dean L.	12	0.00	0.50	0.00	0.00	0.50	Insect Pop. Ecol.
Hoopingarner, Roger A.	12	0.00	0.10	0.70	0.00	0.20	Apic./Pollin.
Howitt, Angus J.	12	0.00	0.50	0.50	0.00	0.00	Fruit Ins. Mgmt.
Merritt, Richard W.	12	0.00	0.50	0.00	0.00	0.50	Aquatic Entomology
Miller, James	13	0.00	0.50	0.00	0.00	0.50	Ins. Phys./Ecol./Attr.
Newson, Harold D.	12	0.00	0.35	0.20	0.00	0.45	Med. Ent. Veg. Ent.
Ruppel, Robert F.	12	0.00	0.40	0.60	0.00	0.00	Field Crop Insects
Simmons, Gary A.	12	0.00	0.60	0.30	0.00	0.10	Forest Ins. Ecology
Stehr, Frederick W.	12	0.00	0.25	0.00	0.00	0.75	Ins. Ecol./Syst.
Tummala, Ramamohan L.	13	0.00	0.25	0.00	0.00	0.75	Sys. Model
Whalon, Mark E.	13	0.00	0.50	0.50	0.00	0.00	Fruit Ins./Vectors
TOTALS:		**0.00**	**6.35**	**4.30**	**0.35**	**6.00**	

Family and Child Ecology

Ph: (517) 355-7680

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Boger, Robert	12	0.00	0.05	0.00	0.00	0.95	Child Development
Borland, Dolores C.	13	0.00	0.25	0.00	0.00	0.75	Human Dev. & Family
Bubolz, Margaret M.	12	0.00	0.30	0.00	0.00	0.70	Human Dev.. & Family
Gladhart, Peter M.	13	0.00	0.25	0.00	0.00	0.75	Ext. Fam. Res. Mgt.
Keefe, Dennis R.	14	0.00	0.25	0.00	0.00	0.75	Family Econ.
Keith, Joanne	13	0.00	0.10	0.55	0.00	0.35	Family Life
Phenice, Lillian	13	0.00	0.25	0.00	0.00	0.75	Human Dev. & Family
Schlamberg, Lawrence	12	0.00	0.25	0.00	0.00	0.75	Child Development
TOTALS:		**0.00**	**1.70**	**0.55**	**0.00**	**5.75**	

Fisheries & Wildlife

Ph: (517) 355-4477

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Garling, Donald L.	14	0.20	0.30	0.50	0.00	0.00	Aquaculture
Giesy, John P.	13	0.35	0.65	0.00	0.00	0.00	Toxicology
Haufler, Jonathon B.	13	0.50	0.50	0.00	0.00	0.00	Wldlf. Ecol. Forest
King, Darrell L.	12	0.55	0.45	0.00	0.00	0.00	Limnology
Liston, Charles R.	13	0.50	0.50	0.00	0.00	0.00	Ichthyol. Ecol.
McNabb, Clarence D., Jr.	12	0.50	0.50	0.00	0.00	0.00	Limnol. Ecol.
Peyton, R. Benny	13	0.70	0.30	0.00	0.00	0.00	Environ. Education
Prince, Harold H.	12	0.55	0.45	0.00	0.00	0.00	Water Fowl
Taylor, Mitchell K.	14	0.50	0.50	0.00	0.00	0.00	Wildlife Biometry
Taylor, William W.	13	0.50	0.50	0.00	0.00	0.00	Fisheries
TOTALS:		**4.85**	**4.65**	**0.50**	**0.00**	**0.00**	

Food Science

Ph: (517) 355-8474

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Booren, Alden M.	14	0.10	0.15	0.75	0.00	0.00	Meat/Poultry/Fish
Brunner, J. Robert	12	0.20	0.80	0.00	0.00	0.00	Dairy Products
Cash, Jerry N.	13	0.00	0.25	0.75	0.00	0.00	Fruit/Veg. Products
Gray, J. Ian	12	0.40	0.35	0.00	0.00	0.25	Food Chemistry
Grulke, Eric A.	13	0.00	0.25	0.00	0.00	0.75	Food Engineering
Harte, Bruce R.	13	0.00	0.25	0.00	0.00	0.75	Food Packaging
Mannheim, Chaim H.	12	0.00	0.50	0.00	0.00	0.50	Food Packaging
Markakis, Pericles	12	0.25	0.75	0.00	0.00	0.00	Food/Veg. Chemistry
Merkel, Robert A.	12	0.00	0.25	0.00	0.00	0.75	Meats
Partridge, John A.	14	0.75	0.25	0.00	0.00	0.00	Dairy Technology
Pearson, Albert M.	12	0.20	0.80	0.00	0.00	0.00	Meat Chemistry
Pestka, James J.	14	0.50	0.50	0.00	0.00	0.00	Food Microbiology
Price, James F.	12	0.50	0.50	0.00	0.00	0.00	Meat/Poultry Prod.
Steffe, James F.	13	0.00	0.25	0.00	0.00	0.75	Food Engineering
Stine, Charles M.	12	0.80	0.20	0.00	0.00	0.00	Dairy Chemistry
Uebersax, Mark A.	13	0.40	0.60	0.00	0.00	0.00	Fruit/Veg. Products
Wishnetsky, Theodore	13	0.25	0.25	0.50	0.00	0.00	Fruit/Veg. Products
TOTALS:		**4.35**	**6.90**	**2.00**	**0.00**	**3.75**	

Forestry

Ph: (517) 355-0090

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Dickmann, Donald I.	12	0.50	0.50	0.00	0.00	0.00	Tree Physiology
Hanover, James W.	12	0.30	0.70	0.00	0.00	0.00	Forest Genetics
Hart, James B., Jr.	13	0.50	0.50	0.00	0.00	0.00	Forest Soils
Huber, Henry A.	12	0.00	0.10	0.90	0.00	0.00	Forest Ext.
James, Lee M.	12	0.60	0.40	0.00	0.00	0.00	Forest Economist
Keathley, Daniel E.	14	0.25	0.75	0.00	0.00	0.00	Forest Genetics
Kielbaso, Julian J.	12	0.75	0.25	0.00	0.00	0.00	Urban Forestry
Koelling, Melvin R.	12	0.10	0.10	0.80	0.00	0.00	Forest Ext.
Lantagne, Douglas O.	14	0.00	0.20	0.80	0.00	0.00	Silviculture
Manthy, Robert S.	12	0.50	0.50	0.00	0.00	0.00	Forest Economist
Marty, Robert J.	12	0.70	0.30	0.00	0.00	0.00	Forest Economist
Pregitzer, Kurt S.	14	0.40	0.60	0.00	0.00	0.00	Forest Ecology
Ramm, Carl W.	13	0.50	0.50	0.00	0.00	0.00	Forest Biometrics
Silker, Alan W.	12	0.20	0.80	0.00	0.00	0.00	Wood Science
Suchsland, Otto	12	0.20	0.80	0.00	0.00	0.00	Wood Science
TOTALS:		**5.50**	**7.00**	**2.50**	**0.00**	**0.00**	

Horticulture

Ph: (517) 355-5191

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Bittenbender, Harry C.	14	0.50	0.00	0.00	0.50	0.00	Interna'l. Agr.
Bukovac, Martin J.	12	0.10	0.90	0.00	0.00	0.00	Plant Phys./Pomol.
Cameson, Arthur C.	14	0.30	0.70	0.00	0.00	0.00	Plant Physiology
Carlson, William H.	12	0.15	0.35	0.50	0.00	0.00	Plant Phys./Flori.
Dennis, Frank G., Jr.	12	0.60	0.40	0.00	0.00	0.00	Plant Phys./Pomol.
Dilley, David R.	12	0.20	0.80	0.00	0.00	0.00	Postharvest Phys.
Ewart, Lowell C.	12	0.10	0.60	0.00	0.00	0.30	Floral/Onion Brdg.
Flore, James A.	12	0.35	0.65	0.00	0.00	0.00	Plant Phys./Pomol.
Hancock, James F.	13	0.10	0.90	0.00	0.00	0.00	Small Fruit Brdg.
Hanson, Eric J.	14	0.00	0.35	0.65	0.00	0.00	Pomol. Small Fruits
Heins, Royal D.	13	0.30	0.70	0.00	0.00	0.00	Plant Phys./Flor.
Herner, Robert C.	12	0.35	0.65	0.00	0.00	0.00	Postharvest Phys.
Honma, Shigemi	12	0.10	0.90	0.00	0.00	0.00	Genet./Plant Brdg.
Howell, Gordon S.	12	0.15	0.80	0.00	0.00	0.05	Plant Phys./Vitic.
Hull, Jerome, Jr.	12	0.00	0.30	0.70	0.00	0.00	Pomology
Iezzoni, Amy F.	14	0.20	0.80	0.00	0.00	0.00	Fruit Breeding
Perry, Ronald L.	14	0.00	0.50	0.50	0.00	0.00	Pomol./Rootstocks
Price, Hugh C.	12	0.00	0.50	0.50	0.00	0.00	Vegetable Crops
Putnam, Alan R.	12	0.35	0.65	0.00	0.00	0.00	Plt. Phys./Weed Sci.
Ries, Stanley K.	12	0.20	0.80	0.00	0.00	0.00	Plant Physiology
Sink, Kenneth C.	12	0.25	0.69	0.00	0.00	0.06	Genet./Plant Brdg.
Widders, Irvin E.	14	0.25	0.75	0.00	0.00	0.00	Veg. Physiology
Zandstra, Bernard H.	13	0.00	0.30	0.70	0.00	0.00	Vegetable Crops
TOTALS:		**4.55**	**13.99**	**3.55**	**0.50**	**0.41**	

Human Environment & Design

Ph: (517) 355-7712

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Morrison, Bonnie M.	12	0.00	0.50	0.00	0.00	0.50	Housing
Slocum, Ann C.	13	0.00	0.25	0.00	0.00	0.75	Clothing and Text.
Sontag, M. Suzanne	13	0.00	0.25	0.00	0.00	0.75	Clothing and Text.
Witter, Brenda S.	13	0.00	0.25	0.00	0.00	0.75	Tourism/Merch. Mgt.
TOTALS:		**0.00**	**1.25**	**0.00**	**0.00**	**2.75**	

Human Nutrition

Ph: (517) 355-8474

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Bennink, Maurice R.	12	0.50	0.50	0.00	0.00	0.00	Nutrition
Bond, Jenny T.	12	0.60	0.40	0.00	0.00	0.00	Nutrition
Chenoweth, Wanda L.	12	0.50	0.25	0.00	0.00	0.25	Nutrition
Ott, Dana B.	14	0.50	0.50	0.00	0.00	0.00	Foods & Nutrition
Romsos, Dale R.	12	0.30	0.70	0.00	0.00	0.00	Lipid Metabolism
Sawyer, Carol A.	13	0.75	0.25	0.00	0.00	0.00	Food Service Mgt.
Schemmel, Rachelle A.	12	0.45	0.30	0.00	0.00	0.25	Nutrition
Song, Won	14	0.75	0.25	0.00	0.00	0.00	Nutrition
Zabik, Mary E.	12	0.50	0.50	0.00	0.00	0.00	Foods
Zile, Malja H.	14	0.50	0.50	0.00	0.00	0.00	Nutrition
TOTALS:		**5.35**	**4.15**	**0.00**	**0.00**	**0.50**	

Kellogg Biological Station

Ph: (517) 353-9445

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Bush, Guy L.	12	0.00	0.10	0.00	0.00	0.90	Genetics
TOTALS:		**0.00**	**0.10**	**0.00**	**0.00**	**0.90**	

Large Animal Clinical Sciences

Ph: (517) 355-9593

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Herdt, Thomas H.	13	0.00	0.25	0.00	0.00	0.75	Food Animal Med.
Kaneene, Jon	13	0.00	0.15	0.00	0.00	0.85	Epidem./Dis. Impact
Nachreiner, Raymond F.	12	0.00	0.25	0.00	0.00	0.75	Clin. Endocrinology
Robinson, Norman E.	12	0.00	0.33	0.00	0.00	0.67	Respir. Physiology
Stowe, Howard D.	12	0.00	0.30	0.00	0.00	0.70	Clinical Nutrition
Thacker, Brad J.	14	0.00	0.58	0.00	0.00	0.42	Swine Medicine
TOTALS:		**0.00**	**1.86**	**0.00**	**0.00**	**4.14**	

Microbiology & Public Health

Ph: (517) 355-6463

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Breznak, John A.	12	0.00	0.70	0.00	0.00	0.30	Microbial Ecology
Chelm, Barry K.	14	0.00	0.48	0.00	0.00	0.52	Bact. Genetics
Dazzo, Frank B.	13	0.00	0.60	0.00	0.00	0.40	Microbial
Hausinger, Robert P.	14	0.00	0.40	0.00	0.00	0.60	Microbiology
Klug, Michael J.	12	0.00	0.25	0.00	0.00	0.75	Microbial Ecology
Reddy, C. Adinarayana	13	0.00	0.50	0.00	0.00	0.50	Microbiology
Sadoff, Harold L.	12	0.00	0.40	0.00	0.00	0.60	Microbiology
Uffen, Robert L.	12	0.00	0.40	0.00	0.00	0.60	Microbial Physiology
Velicer, Leland F.	12	0.00	0.30	0.00	0.00	0.70	Virology
Williams, Jeffrey F.	12	0.00	0.40	0.00	0.00	0.60	Parasitology
TOTALS:		**0.00**	**4.43**	**0.00**	**0.00**	**5.57**	

Packaging

Ph: (517) 355-9580

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Burgess, Gary J.	14	0.93	0.07	0.00	0.00	0.00	Packaging
Glacin, Jack R.	12	0.50	0.50	0.00	0.00	0.00	Packaging
Lee, Julian J.	14	0.80	0.20	0.00	0.00	0.00	Packaging
Richmond, Michael L.	14	0.75	0.25	0.00	0.00	0.00	Packaging
TOTALS:		**2.98**	**1.02**	**0.00**	**0.00**	**0.00**	

Park & Recreation Resources

Ph: (517) 353-5190

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Fridgen, Joseph D.	13	0.40	0.60	0.00	0.00	0.00	Leisure/Env. Perc.
Holecek, Donald F.	12	0.50	0.50	0.00	0.00	0.00	Ther. Recr.
McDonough, Maureen H.	14	0.35	0.15	0.50	0.00	0.00	Env. Interp.
Spotts, Daniel	14	0.00	1.00	0.00	0.00	0.00	Recreation
Stynes, Daniel J.	13	0.50	0.50	0.00	0.00	0.00	Sys. Anly. and Plan
TOTALS:		**1.75**	**2.75**	**0.50**	**0.00**	**0.00**	

Pathology

Ph: (517) 353-9160

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Padgett, George A.	12	0.00	0.25	0.00	0.00	0.75	Comp. Vet. Path.
Sleight, Stuart D.	12	0.00	0.70	0.00	0.00	0.30	Vet. Path.
Slocombe, Ronald F.	14	0.00	0.50	0.00	0.00	0.50	Vet. Path.
Trapp, Allan L.	12	0.00	0.10	0.00	0.00	0.90	Diag. Vet. Path.
Waxler, Glenn L.	12	0.00	0.25	0.00	0.00	0.75	Vet. Path.
Whitehair, Charles K.	12	0.00	0.80	0.00	0.00	0.20	Lab. Animals
TOTALS		**0.00**	**2.60**	**0.00**	**0.00**	**3.40**	

Pesticide Research Center

Ph: (517) 353-9430

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Giesy, John P., Jr.	13	0.00	0.55	0.00	0.00	0.45	Aquat. Fates/Effects
Ringer, Robert K.	12	0.00	0.50	0.00	0.00	0.50	Physiology
Zabik, Matthew J.	12	0.00	0.70	0.00	0.00	0.30	Chem. Toxicology
TOTALS:		**0.00**	**1.75**	**0.00**	**0.00**	**1.25**	

Physiology

Ph: (517) 355-6475

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Dukelow, W. Richard	12	0.00	0.40	0.00	0.00	0.60	Repro. Physiology
Fromm, Paul O.	12	0.00	0.50	0.00	0.00	0.50	Compar. Physiology
Meites, Joseph	12	0.00	0.20	0.00	0.00	0.80	Endocrinology
Riegle, Gail D.	12	0.00	0.25	0.00	0.00	0.75	Endocrinology
Ringer, Robert K.	12	0.00	0.10	0.00	0.00	0.90	Avian Physiology
Walsh, Scott W.	14	0.00	0.50	0.00	0.00	0.50	Repro. Endocrin.
TOTALS:		**0.00**	**1.95**	**0.00**	**0.00**	**4.05**	

Resource Development

Ph: (517) 355-3421

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Bronstein, Daniel A.	12	0.92	0.08	0.00	0.00	0.00	Env. Policy & Law
Chappelle, Daniel E.	12	0.60	0.07	0.00	0.00	0.33	Res. Econ. & Pol.
Dersch, Eckhart	12	0.25	0.10	0.65	0.00	0.00	Nat. Res. Mgmt.
Edens, Thomas C.	14	0.00	0.80	0.00	0.00	0.20	Res. Econ. & Pol.
Fear, Frank A.	13	0.75	0.25	0.00	0.00	0.00	Comm. & Reg. Dev.
Humphrys, Clifford R.	12	0.70	0.30	0.00	0.00	0.00	Nat. Res. Mgmt.
Kakela, Peter J.	13	0.20	0.30	0.38	0.12	0.00	Nat. Res. Mgmt.
Kimball, William J.	12	0.20	0.10	0.70	0.00	0.00	Comm. & Reg. Dev.
Nickel, Paul E.	12	0.75	0.25	0.00	0.00	0.00	Res. Econ. & Pol.
Schultink, Gerhardus	14	0.13	0.13	0.00	0.74	0.00	Nat. Res. Mgmt.
Thullen, Manfred	12	0.00	0.19	0.00	0.00	0.81	Comm. & Reg. Dev.
TOTALS:		**4.50**	**2.57**	**1.73**	**0.86**	**1.34**	

Sociology

Ph: (517) 355-6640

Name	Rank	FTE Percent T	R	E	G	O	Area of Interest
Beegle, J. Allan	12	0.00	0.50	0.00	0.00	0.50	Population Changes
Harris, Craig K.	13	0.00	0.50	0.00	0.00	0.50	Soc. of Agriculture
Johnson, Nan E.	13	0.00	0.50	0.00	0.00	0.50	Demography
Morrison, Denton	12	0.00	0.50	0.00	0.00	0.50	Environmental Soc.
Schwarzweller, Harry K.	12	0.00	0.50	0.00	0.00	0.50	Soc. of Agriculture
TOTALS:		**0.00**	**2.50**	**0.00**	**0.00**	**2.50**	
GRAND TOTALS:		**59.39**	**136.02**	**44.24**	**2.41**	**59.94**	

List of Active AES Projects*

By Department

*Signifies Regional Research Project

Agricultural & Extension Education

Project 1400	**A Professional Development Program For Research Faculty In AES**	Cooper, C.R.
Project 3147	**New Directions In Agriculture And Natural Resources Education And Information Delivery Systems**	Wamhoff, C.H.
Project 3255	**The University's Catalytic Role For Business/Industry, Government And University Connections**	Cooper, C.R.

Agricultural Economics

Project 442	**Economics Of Agricultural Development And Economic Change**	Johnson, G.L.
Project 991	**Agricultural Institutions, Decision Processes And Information Systems**	Bonnen, J.T.
Project 996	**Assessments Of Consumer Reactions To New Food Products And Marketing Services**	Zehner, M.C.
Project 1046	**Analysis Of Agricultural Production And Farm Level Marketing Systems**	Black, J.R.
Project 1079	**Health Care Delivery Systems As They Serve Rural People**	Stevens, R.D.
Project 1110	**The Impact Of Price Programs, Marketing Regulations And Other Institutions On Market Performance Of Dairy Industry**	McBride, G.
Project 1173*	**Organization And Performance Of The U.S. Food Production And Distribution System**	Shaffer, J.D.
Project 1197	**Economic And Policy Factors Affecting Domestic And International Markets For United States Agricultural Products**	Sorenson, V.L.
Project 1229	**Improving Economic And Marketing Intelligence In The Food System**	Ferris, J.N.
Project 1254	**Effect Of Changes In Transportation On Performance Of The U.S. Agricultural Transportation System**	Thompson, S.R.
Project 1329	**Improved Fruit And Vegetable Marketing Systems**	Ricks, D.J.
Project 1372	**Performance Of Natural Resource Management Institutions In The Context Of Michigan's Economic Future**	Libby, L.W.
Project 1373	**Rural Development, Public Services And Regulations Economic Policy Issues Of Emerging Agricultural Biotechnologies**	Schmid, A.A.
Project 1403	**A Study Of Regulatory Decision-Making On Toxic Substances In The Food System**	Vanravenswaay, E.
Project 1423	**Economic Evaluation Of Financial Issues Facing Borrowers And Lenders Under Conditions Of Inflation**	Robison, L.J.
Project 1430	**Evaluating Financial Markets For Agriculture**	Robison, L.J.

Agriculture Economics (Continued)

Project 1446*	**Analysis Of Food And Agricultural Policies In An Uncertain Economic Environment**	Sorenson, V.
Project 1449*	**An Economic Analysis Of Risk Management Strategies For Agricultural Production Firms**	Robison, L.
Project 1467*	**Implications Of Emerging Policy Issues And Market Developments For The North Central Dairy Industry**	McBride, G.C.
Project 3052	**Agricultural Sector Models**	Johnson, G.L.
Project 3083	**Tactical Decision Making For And The Application Of Computer And Communications Technology And Control Theory To Michigan Farms, Agribusiness, And Natural Resources Firms**	Harsh, S.B.
Project 3131	**Agricultural Economics Research—Problems Of Less Developed Countries**	Connor, L.J.

Agricultural Engineering

Project 336	**Processing Of Biological Products**	Bakker-Arkema, F.
Project 1041	**The Dynamics And Energetics Of The Soil-Plant-Atmosphere Continuum**	Merva, G.E.
Project 1050*	**Mechanical Harvesting And Handling Of Fruits And Vegetables**	Segerlind, L.J.
Project 1066*	**Energy And By-Products From Livestock Wastes**	Gerrish, J.B.
Project 1067*	**Characterization Of Climate And Assessment Of Impact On Agriculture And Other Renewable Resources**	Nurnberger, F.V.
Project 1181	**Engineering Considerations In Food Processing**	Steffe, J.F.
Project 1232	**Mechanical Harvesting, Handling Processing, And Storage Systems For Fruits And Vegetables**	Cargill, B.F.
Project 1361	**Marketing And Delivery Of Quality Cereals And Oilseeds In Domestic And Foreign Market**	Bakker-Arkema, F.
Project 1425	**Robotics In Agriculture**	Gerrish, J.B.
Project 1427*	**Irrigation Scheduling Methods For Efficient Water And Energy Use**	Bralts, V.F.
Project 1429	**Minimizing Energy Usage While Optimizing Environmental Conditions In Swine Confinement Systems**	Person, H.L.
Project 1431*	**Trickle Irrigation In Humid Regions**	Bralts, V.
Project 1465*	**Corn And Soybean Response To Drainage**	Merva, G.E.
Project 3070	**Climatology Of Michigan**	Nurnberger, F.V.
Project 3112	**Micro Modelling Of Appropriate Agricultural Mechanization Systems In Developing Countries**	Esmay, M.L.
Project 3142	**Waste Disposal Effects On Water Quality**	Loudon, T.L.
Project 3177	**Crop Properties Related To Machine Design And Performance**	Srivastava, A.K.
Project 3178	**Development Of Machine Concepts For Mechanized Agriculture**	Ledebuhr, R.L.

Animal Science

Project 44	**Biological And Biochemical Effects Of Certain Nutritional And Physical Factors On Swine**	Miller, E.R.
Project 102*	**Improving Dairy Cattle Through Breeding With Special Emphasis On Selection**	McGilliard, L.D.
Project 721	**Basis And Test Studies Utilizing Avian Species Other Than Poultry As Pilot Research Animals**	Coleman, T.H.
Project 797	**Reproductive Physiology, Endocrinology, And Cardiovascular Physiology In Aves**	Ringer, R.K.
Project 854	**Protein And Carbohydrate Sources In Rations Fed Young Ruminants**	Huber, J.T.
Project 859	**Hormonal Control Of Reproduction In Cattle, Sheep And Swine**	Dukelow, W.R.
Project 1039	**Fur Animal Studies (Mink)**	Aulerich, R.J.
Project 1120*	**Improvement Of Beef Cattle Through Breeding Methods**	Magee, W.T.
Project 1156*	**Improving Large Dairy Herd Management Practices**	Speicher, J.A.
Project 1163	**Factors Controlling Growth And Lactation**	Tucker, H.A.
Project 1178	**Developing Breeding Strategies To Maximize Economic Gain In Dairy Enterprises**	Mao, I.L.
Project 1182*	**Factors Regulating Protein Synthesis, Degradation And Growth Skeletal Muscle**	Bergen, W.G.
Project 1196*	**Methods For Improvement Of Fertility In Cows Postpartum**	Fogwell, R.L.
Project 1226	**Protein And Amino Acid Nutrition And Metabolism In Ruminants**	Bergen, W.G.
Project 1244	**Rumen Microbial Fermentation Of Forages & Crop & Processing Residue Phenolic Compounds**	Yokoyama, M.T.
Project 1278	**Improvement Of Design And Analysis Of Animal Experiments**	Gill, J.L.
Project 1291	**Optimizing The Nutritional Utilization Of Forages By Dairy Cattle**	Thomas, J.W.
Project 1299	**Mechanism Of Testosterone And Growth Hormone**	Merkel, R.A.
Project 1315	**Production Of Steroids, Inhibin And Gonadotropins During Development Of Dominant Follicles In Cattle**	Ireland, J.J.
Project 1318	**Utilization Of Fiber By Ruminants**	Cook, R.M.
Project 1324	**Ovarian Function In Dairy Cattle**	Fogwell, R.L.
Project 1377	**Photoperiodic Control Of Growth And Milk Yield In Cooperator Herds**	Tucker, H.A.
Project 1407	**A Genetic And Biometric Study Of The Lactation Curve In Dairy Cattle**	Anderson, C.R.
Project 1433	**Biological, Biochemical, Nutritional, And Environmental Factors Impacting On Avian Growth, Reproduction And Metabolism**	Polin, D.
Project 1437	**Increasing Milk Solids Secretion**	Emery, R.S.
Project 1445*	**Redirecting The Nutrient Flow In Cows For Maximum Milk Production**	Huber, J.
Project 1450	**Poultry Disease Studies**	Chang, T.
Project 1463	**The Control Of Food And Water Intake In Poultry**	Polin, D.
Project 3014	**Maximum Utilization Of Michigan Grown Roughages For Finishing Cattle**	Hawkins, D.R.

Animal Science (Continued)

Project 3047	**Establish Regimes For Utilization Of Michigan Forages/Crop Residues In Production Of Feeder Calves**	Ritchie, H.D.
Project 3079	**Upgrading Of Low Quality Forages For Lactating Cows Through Treatment With Varying Levels of Ammonias**	Huber, J.T.
Project 3117	**Nutrition And Physiology Of The Horse**	Ullrey, D.E.
Project 3118	**Comparative Nutrition And Physiology Of Wild Animals**	Ullrey, D.E.
Project 3143	**Animal Waste Utilization In Farm Animal Production**	Chang, T.S.
Project 3170	**Performance Of Simmental Cattle Under Northern Michigan Conditions**	Ritchie, H.D.
Project 3190	**Forage And Grain Utilization By Cattle In The Upper Peninsula**	Bucholtz, H.F.
Project 3217	**The Fate And Biological Effects Of Xenobiotics In Farm Animal Species**	Bursian, S.
Project 3258	**An Eggshell Quality Management System**	Balander, R.
Project 6833	**Intestinal P-Cresol Production By Gnotobiotic Pigs Monoassociated With A P-Cresol Producing Bacterium Isolated From Pig Feces**	Yokoyama, M.
Project 6834	**Does Negative Energy Balance Adversely Affect Luteal Function In Lactating Dairy Cattle**	Fogwell, R.
Project 6836	**Mastitis—Metritis—Agalactia (MMA) In Swine**	Miller, E.R.
Project 6837	**Development Of A Model: Examine Role Of Progesterone On Initiation Of Estrous Cycles In Cattle**	Ireland, J.
Project 7507	**Intestinal P-Cresol Production And Pulmonary Toxicity In The Young Pig**	Yokoyama, M.T.
Project 7511	**Cortisol Inhibitor Of Normal Bovine Reproduction Postpartum**	Convey, E.M.
Project 7522	**Photoperiod-Induced Changes In Growth And Carcass Composition Of Steers**	Tucker, H.A.

Biochemistry

Project 1167	**Development Of An Accurate Computerized Fluorimeter And Its Application To Chemical And Biochemical Problems**	Holland, J.F.
Project 1212	**The Molecular Basis For The Protective Action Of Polysaccharides In Winter Hardiness In Rye And Barley**	Kindel, P.K.
Project 1215	**The Role Of Carnitine Acyltransferases In The Regulation Of Cellular Metabolism**	Bieber, L.L.
Project 1218	**Comparative Enzymological Basis Of Animal Muscle Diseases**	Suelter, C.H.
Project 1219	**Plant Biochemistry And Plant Growth Regulators**	Tolbert, N.E.
Project 1220	**Carbohydrate Metabolism In Plants**	Anderson, R.L.
Project 1223	**The Effect Of Zinc Deficiency On Immune Response**	Luecke, R.W.
Project 1268	**Inosine Nucleotide Metabolism In Animal Cells**	Morris, A.J.
Project 1290*	**Cellular Photosynthetic Process And The Regulation Of Photosynthesis**	Tolbert, N.E.
Project 1350	**The Molecular Basis Of Leukemogenesis And Sarcomagenesis Of Chicken**	Kung, H.J.
Project 1452	**Development Of Quantitative Vapor Phase Methodology For Steroids**	Watson, J.T.
Project 1457	**Pig Hepatocyte Preparation Procedure—Hormones And Diet On Binding Phosphofructokinase To Membranes**	Deal, W.C.
Project 3215	**Biochemical Mechanisms Of Toxicity**	Aust, S.D.
Project 8015	**Lectin Receptors And Cytoskeletal Proteins In Soybean Cells**	Wang, J.L.

Botany & Plant Pathology

Project 417	**Cereal Disease Investigations**	Hart, L.P.
Project 919	**Interactions Of Viruses And Cells**	Murakishi, H.H.
Project 922	**Physiology Of Disease Development And Disease Resistance In Plants**	Scheffer, R.P.
Project 926	**Reactions Of Isolated Chloroplasts And The Role Of Auxin Conjugation In Cellular Differentiation**	Good, N.E.
Project 953	**Effect Of Energy Stress In Soil On The Ecology Of Root-Infecting Fungi**	Lockwood, J.L.
Project 962	**Tree Fruit Disease Control By Chemicals And Other Means**	Klos, E.J.
Project 1040	**Turfgrass Pathology**	Vargas, J.M., Jr.
Project 1077	**The Use Of Remote Sensing Techniques For The Detection Of CR Stress (Disease And Water)**	Safir, G.R.
Project 1111	**Diseases Of Vegetable And Mint Crops And Their Control**	Lacy, M.L.
Project 1125*	**Virus And Virus-Like Diseases Of Woody, Deciduous Fruit Crops**	Jones, A.L.

Botany & Plant Pathology (Continued)

Project 1133	**Bean Disease Investigations**	Saettler, A.W.
Project 1176	**Development And Disease Resistant Trees Through Selection And Breeding**	Hart, J.H.
Project 1206*	**Biological Control Of Soil-Borne Plant Pathogens In Integrated Crop Management Systems**	Lockwood, J.L.
Project 1225*	**The Dynamics And Energetics Of The Soil Plant Atmosphere Continuum**	Safir, G.R.
Project 1255*	**Detection, Survival, And Control Of Plant Pathogenic Bacteria Seeds And Other Plant Parts**	Klos, E.J.
Project 1259*	**Occurrence Of Mycotoxins In Feeds And Foods And Their Effects On Animal And Human Health**	Hart, L.P.
Project 1353	**Pesticide Impact Assessment Program**	Tschirley, H.F.
Project 1408*	**Biological Improvement Of Chestnut (Castanea Sp.)**	Fulbright, D.W.
Project 1410	**Physiology Of Resistance And Induced Resistance To Disease In Potato**	Hammerschmidt, R.
Project 1422	**Diseases Of Field Crops—Biology And Control**	Hart, L.P.
Project 3066	**Low Volume Application Of Fungicides And Bactericides With Air And Ground Equipment**	Potter, H.S.
Project 3071	**Investigations On Diseases Of Wheat**	Fulbright, D.W.
Project 3123	**Etiology, Epidemiology And Control Of Small Fruit Crops Diseases**	Ramsdell, D.C.
Project 3183	**Management Of Pome Fruit Diseases**	Jones, A.L.
Project 3184	**Stone Fruit Diseases And Their Controls**	Jones, A.L.
Project 3230	**Interaction Of Vesicular-Arbuscular Mycorrhizae And Northern Root-Knot Nematodes On Growth Development**	Safir, G.R.
Project 3247	**Breeding And Selection Of New Grape Cultivars For Michigan**	Good, N.
Project 7503	**An Integrated Approach To Blueberry Shoestring Virus Disease Control**	Ramsdell, D.C.
Project 7521	**Asparagus Decline Syndrome And Replant Problem In Michigan**	Stephens, C.
Project 8003	**Role of Gramini A In Pathogenesis Of Winter Wheat**	Fulbright, D.W.
Project 8007	**Regulation Of Heme Synthesis In Rhizobium**	Nadler, K.D.
Project 8016	**Plastome-Genome Incompatibility And Recomdination Of Chloroplast DNAs**	Sears, B.B.
Project 8017	**Genetic Resistance To Virus Disease In Somatic Cells Of Crop Plant Species**	Murakishi, H.H.

Chemistry

Project 8005	**Change Separation And Stabilization In Chloroplast Photosystem II.**	Babcock, G.

Crop & Soil Sciences

Project 22	**Physical Stress On Crops—Its Detection, Evaluation And Correction**	Erickson, A.E.
Project 77	**Soil Problems Encountered In Growing Plants In Greenhouses**	Warncke, D.D.
Project 115	**Corn Breeding, Improvement, And Genetics**	Rossman, E.C.
Project 268	**Organic Soil Investigations**	Warncke, D.D.
Project 274	**Soil Management Investigations For Sod Production And Turf**	Rieke, P.E.
Project 319	**Classification, Genesis, And Evaluation Of Michigan Soils**	Mokma, D.L.
Project 427	**Micronutrient Status Of Michigan Soils**	Knezek, B.D.
Project 459	**Clay Amendments On Sand Soils**	Erickson, A.E.
Project 569	**Breeding Wheat For Processing**	Freed, R.D.
Project 611	**Farm Crop Studies In Upper Michigan**	Leep, R.H.
Project 715	**Physiological And Cultural Factors Involved In Growing Turfgrasses**	Branham, B.E.
Project 733	**Physiology, Establishment, Management, And Nutritional Value Of Forages**	Tesar, M.B.
Project 739	**Cultural And Management Factors Affecting Potato Quality**	Chase, R.W.
Project 908	**Fundamental Factors In Cultural And Chemical Weed Control, Weed Competition, And Weed Life Cycles**	Meggitt, W.F.
Project 960	**Weed Control: A Component Of Pest Management And Field Crop Production Systems As Related To Chemical And Cultural Practices**	Kells, J.J.
Project 1013	**Improved Dry Bean Varieties To Serve The Bean Growers And Bean Industry Of Michigan**	Adams, M.W.
Project 1042	**Origin, Transformation, And Management Of Nitrogen In Soils, Waters, And Plants**	Tiedje, J.M.
Project 1063*	**Fate Of Nutrients In The Environment As Affected**	Ellis, B.G.
Project 1098*	**Relating Soil Wetness To Selected Soil And Landscape Features And To Land Use Decisions**	Mokma, D.L.
Project 1103	**Adsorption, Transformation And Release Of Inorganic Nutrients By Soils**	Ellis, B.G.
Project 1124	**Plants Nutrients And Their Interaction**	Vitosh, M.L.
Project 1137*	**Optimum Utilization Of Sewage Sludge On Agricultural Land**	Jacobs, L.W.
Project 1144*	**Forage Production And Utilization Systems As A Base For Beef And Dairy Cattle Production**	Tesar, M.B.
Project 1170	**Sugarbeet Storage**	Hogaboam, G.J.
Project 1192*	**Integrating Crop Culture, Chemicals, And Life Cycles To Control Persistent Weeds**	Meggitt, W.F.
Project 1210	**Identification Of Soil Environments Which Stress Plant Root Systems**	Smucker, A.J.M.
Project 1354	**Carbon And Nitrogen Utilization By Stressed Drybean And Sugarbeet Varieties**	Smucker, A.J.M.
Project 1384	**Transport, Utilization And Loss Of C And N Assimilates By Stressed Soybean Roots**	Smucker, A.J.M.
Project 1411*	**Development And Evaluation Of Conservation Tillage Systems**	Erickson, A.E.

Crop & Soil Sciences (Continued)

Project 1420	**Fate Of Natural And Synthetic Organic Chemicals In Soils And Waters**	Boyd, S.A.
Project 1455	**Maximizing Crop Production Efficiency Through Field Testing And Model Building**	Kells, J.J.
Project 1458*	**Gains, Losses And Management Of Soil Nitrogen**	Tiedje, J.M.
Project 1462*	**Soil Productivity And Erosion**	Mokma, D.
Project 3057	**Stress, Physiology Culture, Shipment & Utilization Practices**	Kaufmann, J.E.
Project 3062	**Turfgrass Breeding**	Payne, K.T.
Project 3065	**Physiology And Biochemistry Of Herbicide Action, Selectivity, And Degradation**	Penner, D.P.
Project 3072	**Breeding Soft White Winter Hardy Wheat Varieties For Michigan**	Freed, R.D.
Project 3084	**Ecology And Metbolism Of Pesticides By Soil Microorganisms**	Tiedje, J.M.
Project 3096	**Clay Mineral Investigations**	Mortland, M.M.
Project 3122	**Development And Correlation Of Soil Test Procedures With Crop Yields And Plant Nutrient Contents**	Warncke, D.D.
Project 3128	**Systems Of Cropping**	Christenson, D.R.
Project 3181	**Appraising The Resource Value Of Waste Materials To Develop Greater Utilization On Agricultural Soils**	Jacobs, L.W.
Project 3252	**Broadening The Genetic And Technological Base Of Exchange Programs**	Freed, R.D.
Project 3253	**Computer Simulation Of Soil Water Infiltration Into Michigan Soils**	Kunze, R.J.
Project 3260	**Crop Management Studies In Northern Michigan**	Leep, R.H.
Project 3262	**Soybean Variety Testing**	Isleib, T.G.
Project 3265	**Breeding Soybean Cultivars For Michigan**	Islieb, T.G.
Project 8014	**The Pathway Of Microbial Denitrification**	Tiedje, J.M.

Entomology

Project 78	**Insect Vectors Of Crop Plant Diseases: Identification Characterization And Mechanism Of Transmission**	Whalon, M.E.
Project 193	**Fruit Tree Insects**	Howitt, A.J.
Project 401	**Agriculture And Crop Pollination**	Hoopingarner, R.A.
Project 446	**Nematode Population Management In Michigan Crop Production**	Bird, G.W.
Project 1108	**Integrated Control Of Tree Fruit Pests**	Whalon, M.E.
Project 1187	**Biological Control Of Selected Major Insect Pests In Michigan**	Stehr, F.W.
Project 1190	**Environmental Monitoring For Pest Management Systems**	Gage, S.H.
Project 1194	**Management Of Field And Forage Crop Insects In Michigan**	Ruppel, R.F.
Project 1195	**Development Of Integrated Strategies For Management Of Mosquito Populations**	Newson, H.D.
Project 1213	**Management Of Forest Defoliating Insects And Related Secondary Insects**	Simmons, G.A.
Project 1275	**Models For the Management Of Agro-Ecosystems**	Tummala, R.L.
Project 1283	**Development And Improvement Of Energy And Chemical-Conserving Pesticide Application Methodology For Crops**	Ayers, G.S.
Project 1294*	**Black Fly Damage Thresholds, Biology And Control**	Merritt, R.W.
Project 1296	**Dynamic Damage Assessment To Crops From Insect Defoliation**	Gage, S.H.
Project 1306*	**The Impact Of Nematode Population Dynamics On Crop Growth And Yield**	Bird, G.W.
Project 1322	**Biology And Management Of Insect Pests Of Vegetable Crops**	Grafius, E.J.
Project 1331*	**Reduction Of Corn Losses Caused By Nematodes In the North Central Region**	Bird, G.W.
Project 1360	**Design And Analysis Of Assessment Systems For Biologically Induced Crop Losses—Phase II**	Haynes, D.L.
Project 1435	**Factors Determining Host Finding, Acceptance, And Suitability For Insect Behaviors**	Miller, J.R.
Project 1440*	**Analysis Of Production Systems And IPM Research Needs In The North Central Region**	Bird, G.W.
Project 1460*	**Incidence, Biology, And Management Of The Pine Wilt Complex**	Bird, G.W.
Project 3016	**Population Dynamics And Management Of The Cereal Leaf Beetle**	Gage, S.H.
Project 3114	**Management Of Man Biting Insect Problems In Michigan**	Newson, H.D.
Project 7512	**Spruce Budworm Technology Transfer In The Lake States**	Simmons, G.A.
Project 8000	**Biotic And Abiotic Stress Interactions Between A Small Grain Crop And An Insect Defoliator**	Gage, S.H.
Project 8001	**Estimating Densities Of Gypsy Moths And Other Lepidoptera By Pheromone Traps**	Carde, R.
Project 8011	**Quantifying Sensory Determinants Mediating Oviposition By The Onion Fly**	Miller, J.R.

Family & Child Ecology

Project 1115	**Development Of Guidelines For Creating Resource Centers In Rural Communities**	Earhart, E.M.
Project 1394*	**A Study Of Beliefs About Parenting In Rural And Urban Populations**	Boger, R.P.
Project 1424*	**Stress, Coping, And Adaptation In The Middle Years Of The Family Life Cycle**	Bubolz, M.
Project 1439*	**Dynamics Of Life Plans And Attainment Of Low-Income Youth. A Longitudinal Analysis**	Schiamberg, L.

Fisheries And Wildlife

Project 940	**Ecological Relationships Of Pesticides, Radionuclides, And Nutrients With Organisms In Aquatic Community**	Kevern, N.R.
Project 1312	**Environmental Impacts On Fish Ecology In Nearshore And Connecting Waters Of Upper Great Lakes**	Liston, C.R.
Project 1385	**Effects On Wildlife Of Biomass Fuel Production In Michigan Forests**	Haufler, J.B.
Project 1387	**Mechanistic Factors Determining Aquatic Fertility**	King, D.L.
Project 1409	**Ecology, Population Dynamics And Management Of Michigan Fishes And Their Food Organisms**	Taylor, W.W.
Project 3077	**Environmental And Genetic Components Of Reproduction In Bird Populations**	Prince, H.H.
Project 3248	**Improving Productive Public Involvement In Agriculture And Natural Resource Problem Solving**	Peyton, R.B.
Project 3254	**Nutritional Requirements For Fishes Cultured In Michigan**	Garling, D.
Project 3264	**Aquatic Productivity. Light In Lakes And Ponds**	McNabb, C.D.

Food Science & Human Nutrition

Project 457	**The Effects Of Composition Upon Meat Quality**	Pearson, A.M.
Project 584	**Chemical Changes As Related To Quality Factors In Meats**	Pearson, A.M.
Project 603	**Physical And Chemical Factors Related To The Stability Of Fermented And Dehydrated Foods**	Stine, C.M.
Project 679	**Processing Effects On The Composition And Nutritive Value Of Vegetable Foods**	Markakis, P.
Project 1036	**Microorganisms In Foods And Food Processing**	Pestka, J.J.
Project 1043	**Potentials For Removing Or Reducing Pesticide Residues In Food**	Zabik, M.E.
Project 1150	**Comparative Aspects Of Nutrition And Lipid Metabolism**	Romsos, D.R.
Project 1165*	**Quality And Nutritive Value Of Processed Potatoes**	Cash, J.N.
Project 1174*	**Food Quality And Energy Usage In Foodservice Systems—Microwave And Convective Thermal Processing**	Zabik, M.E.
Project 1193	**Dietary Factors Affecting Gastrointenstinal Function And Utilization Of Nutrients**	Chenoweth, W.C.
Project 1209	**Quality Of Fresh And Processed Meat Products**	Price, J.F.
Project 1211	**Dietary Fat/Carbohydrate Relationships To Selected Health Parameter**	Schemmel, R.A.
Project 1231	**Physical And Chemical Characteristics Of Food Systems**	Brunner, J.R.
Project 1233	**Functional Properties And Utilization Of New Or Improved Fish And Egg Products**	Dawson, L.E.
Project 1237*	**Nutritive Composition, Quality, Stability And Efficient Production Of Poultry Products And Egg Products**	Dawson, L.E.
Project 1242	**Nutritional Factors Pre- And Postnatally Influencing Organ Development and Function**	Bond, J.T.
Project 1245*	**Improvement Of Thermal Processes For Food**	Heldman, D.R.
Project 1323	**Process Efficiency, Quality, And Nutrient Composition Of Fruit And Vegetable Products**	Uebersax, M.A.
Project 1344	**The Effects Of Processing, Cooking And Storage On The Acceptability And Safety Of Food Products**	Gray, J.I.
Project 1352	**Retention And Loss Of Flavor Components From Foods**	Grulke, E.A.
Project 1374	**Characterization And Utilization Of Dry Heated Navy Bean Flour**	Uebersax, M.A.
Project 1395	**Function Of Lipasis In Cheeses And Fermented Dairy Products**	Partridge, J.A.
Project 1396	**Foodservice Systems. Information Equipment And Personnel**	Sawyer, C.A.
Project 1413	**Metabolism And Function Of Vitamin A**	Zile, M.H.
Project 1416*	**U.S. Food Demand And Consumption Behavior**	Zabik, M.E.
Project 1419	**Processing Treatments Influencing Functional Properties And Utilization Of Muscle Foods**	Booren, A.M.
Project 1444*	**Modification Of Human Diets Designed To Affect Lipid Metabolism**	Romsos, D.
Project 1448	**Microbial Food-Borne Diseases**	Pestka, J.
Project 3092	**Effects Of Raw Material, Processing, And Storage Factors On Food Quality**	Wishnetsky, T.

Food Science & Human Nutrition (Continued)

Project 3171	**Research Related To Food Processing Industry And Consumers**	Dutson, T.R.
Project 3202	**Relationship Of Diet And Intestinal Cancer**	Bennink, M.R.
Project 3221	**Processing And Quality Evaluation Of Fruits And Vegetables**	Cash, J.N.
Project 3245	**Energetic And Economic Evaluations Of Membrane Separations For Alcohol Plants**	Grulke, E.A.
Project 7514	**Mechanisms And Precursors Of N-Nitrosamine Formation In Cured Meats**	Gray, J.I.
Project 7515	**Utilization And Market Development Of Dry Heated Edible Bean Flour Fractions**	Uebersax, M.
Project 7519	**Immunochemical Methods For The Diagnosis And Prevention Of Swine Mycotoxicoses**	Pestka, J.J.
Project 8006	**Metabolism And Function Of Retinoic Acid In The Small Intestine**	Zile, M.H.
Project 8008	**Factors Affecting Copper Balance And Status In The Elderly**	Chenoweth, W.L.

Forestry

Project 486	**Agro-Chemicals, Soil Amendments,Cultural Practices For Forest Quality Improvement**	Hart, J.B.
Project 936	**Physiological Genetic Studies Of Forest Trees**	Hanover, J.W.
Project 978	**Financial Evaluation Of Forest Management Opportunities**	Marty, R.J.
Project 1048	**Fiberbonding In Fiberboard Manufacture**	Suchsland, O.M.
Project 1100*	**Forest Tree, Improvement Through Selection, Breeding, And Seed Production Phase V**	Hanover, J.W.
Project 1148	**Development Of Techniques In Forest Biometry**	Ramm, C.W.
Project 1149	**Timber Market Dynamics**	Manthy, R.S.
Project 1180	**Ecological Factors Affecting Tree Productivity**	Pregitzer, K.S.
Project 1198	**Biology OF Terpenes In Woody Plants**	Hanover, J.W.
Project 1207	**Growth, Yield, And Physiology Of Intensively Grown Tree Species In Michigan**	Dickmann, D.I.
Project 1282	**Chemical Changes In Atmospheric Deposition And Effects On Land And Surface Waters**	Hart, J.B.
Project 1342	**Mathematical Models For Forest Management**	Marty, R.J.
Project 1362	**Mechanical Properties Of Solid Wood And Wood Fiber Products**	Sliker, A.W.
Project 1438	**Enhancing Amenity Values Of Urban And Rural Trees**	Kielbaso, J.J.
Project 1447*	**Chemistry Of Atmospheric Deposition—Effects On Agriculture, Forestry, Surface Waters, And Materials**	Hart, J.B.
Project 1469	**Forest Soil Evaluation And Management Using Agro-Chemicals, Soil Amendments And Cultural Practices**	Hart, J.B.
Project 3157	**Accelerating Tree Growth Through Breeding And Intensive Culture**	Hanover, J.W.
Project 3162	**Production Efficiency In The Industrial Use Of Wood**	Huber, H.A.

Geography

Project 3249	**Climatology Of Late Spring Freezes In The Lower Peninsula Of Michigan**	Harmon, J.

Horticulture

Project 650	**Modification Of Tree Fruits To Facilitate Mechanization Of Cultural Practices**	Hull, J., Jr.
Project 792	**Cultural Practices For Vegetables To Facilitate Mechanized Production And Harvest Procedures**	Price, H.C.
Project 909	**Biology, Ecology, And Management Of Weed Pests In Horticultural Cropping Systems**	Putnam, A.R.
Project 935	**Effects Of Biologically Active Chemicals On Plant Growth And Development**	Bukovac, M.J.
Project 1012	**Breeding Cole Crops, Celery, Field Tomato, Pepper, Snap Bean And Greenhouse Tomato And Lettuce**	Honma, Shigemi
Project 1045	**Controlling Yield And Quality Of Deciduous Tree Fruits**	Dennis, F.G., Jr.
Project 1153*	**Quality Maintenance, And Control In The Marketing And Storage Of Vegetables**	Herner, R.C.
Project 1155*	**Postharvest Physiology Of Fruits**	Dilley, D.R.
Project 1222*	**Introduction, Multiplication, Preservation, Cataloging And Utilization Of Plant Germplasm**	Iezzoni, A.
Project 1272	**Physiology Of Carbon Balance In Deciduous Fruit Trees**	Flore, J.A.
Project 1305*	**Rootstock And Interstem Effects On Pone And Stone Fruit Tree Growth And Fruiting**	Perry, P.
Project 1325	**Vegetable Production And Culture**	Zandstra, B.H.
Project 1343	**Physiological Studies To Prolong The Postharvest Life Of Flowers**	Heins, R.D.
Project 1380	**Strawberry, Blueberry And Bramble Improvement**	Hancock, J.F.
Project 1386	**Breeding And Genetics Of Floriculture Plants**	Ewart, L.C.
Project 1397*	**Development And Evaluation Of Conservation Tillage Systems UTNAM, A. 26**	Ewart, L.C.
Project 1423	**Stone Fruit Breeding**	Iezzoni, A.F.
Project 1466	**Increasing The Efficiency Of Nutrient Utilization By Horticultural Crops**	Krauskopf, D.M.
Project 1468	**Mineral Nutrition Of Vegetable Crops**	Widders, I.E.
Project 3012	**Chemical Regulation Of Growth And Nitrogen Metabolism In Plants**	Ries, S.K.
Project 3031	**Environmental And Physiological Variables Effect On Growth Quality And Marketability Of Flower Crops**	Carlson, W.H.
Project 3218	**Manipulation Of Viticulture To Achieve Maximum Quality, Yield, And Resistance To Freeze Damage**	Howell, G.S.
Project 3227	**Adaption Of Fruit Cultural Practices To Northern Michigan Conditions**	Kesner, C.D.
Project 3231	**Protoplast Isolation, Culture, Regeneration To Plants And Somatic Hybridization Of Horticultural Plants**	Sink, K.C.
Project 3266	**Breeding And Genetics Of Onions**	Ewart, L.C.

Human Ecology

Project 3152	**Function Of The Family Ecosystem In A World Of Changing Energy Availability**	Gladhart, P.M.

Human Environment & Design

Project 1375	**Energy Consumption In The American Household 1900 To 1977**	Morrison, B.M.
Project 1426	**Evaluation Of Insulative Clothing For Functioning At Reduced Household Temperatures**	Sontag, S.M.
Project 1442*	**Limiting Pesticide Exposure Through Textile Cleaning Procedures And Selection Of Clothing**	Slocum, A.
Project 3256	**Toward Achieving Michigan's Rural Employment Potential— The Role Of Resort Area Retailing**	Witter, B.S.
Project 3261	**Family Adaptation To Changing Resources And Environments Improving Quality Of Life In Rural Areas**	Sontag, M.S.

Kellogg Biological Station

Project 8018	**Plant Performance In Multi-Crop And Crop-Weed Systems Application Of The Reciprocal Yield Law**	Werner, P.A.

Large Animal Clinical Sciences

Project 1316	**Trace Element Interactions And The Relative Influence Of Cupric And Sulfate Ions On Selenium Metabolism**	Stowe, H.D.
Project 1332	**Identification Of Endocrine And Uterine Factors Which Can Be Used For The Diagnosis**	Nachreiner, R.F.
Project 1356	**Prevention Of Neonatal Calf Mortality**	Robinson, N.E.
Project 1415*	**Infectious Agents Affecting Reproduction In Cattle**	Gunther, J.D.
Project 1417*	**Mechanism Of Pulmonary Damage In Neonatal Calves Exposed To Pasteurella Haemolytica**	Slocombe, R.F.
Project 1434	**Bovine Hepatic Lipidosis Studies**	Herdt, T.H.
Project 6805	**Preliminary Survey Of The Prevalence Of Bovine Leukosis In Michigan Dairy Cattle**	Kaneene, J.B.

Large Animal Clinical Sciences (Continued)

Project 6808	**Prevalence And Economic Importance Of Fascioloides Infection In Michigan Livestock**	Schillhorn, Van Veen, T.
Project 6809	**Evaluation Of Cost Benefits Of Animal Health Care**	Mather, E.C.
Project 6832	**Significance Of The Genetic Predisposition Of Pigs To Hypo- And Hyperselenemia**	Stowe, H.
Project 6835	**Preliminary Investigations On The Incidence And Immunodiagnosis Of Lungworm Infections**	Schillhorn, Van Veen, T.
Project 7506	**Anthelmintic Treatment Of Dairy Cows Effect On Hormonal Determinants Of Milk Yield**	Schillhorn, Van Veen, T.
Project 7520	**Role Of Endotoxin And Neutrophilis In Bovine Pneumonic Pasteurellosis**	Robinson, N.

Microbiology & Public Health

Project 1136	**Herpesvirus Disease—Antigens In Cells Infected With Marek's Disease Herpesvirus**	Velicer, L.F.
Project 1177	**Biochemical Symbiosis Between Termites And Their Intestinal Microbes**	Breznak, J.A.
Project 1300	**Studies On Bacterial Degradation Of Lignin**	Reddy, C.A.
Project 1314	**Host-Symbiont Recognition In The Nitrogen-Fixing Rhyzobium-Clover Symbiosis**	Dazzo, F.B.
Project 1371	**Evaluation Of An In Vivo Model To Study Latent Infections Caused By Pseudorabies Virus**	Maes, R.K.
Project 1398	**Plasmids Among Enterobacteriaceae Isolates From The Large Intestine Of Swine**	Schoenhard, D.E.
Project 1443	**Swine Intestinal Organ Cultures As An In Vitro Model To Study Transmissible Gastroenteritis Of Swine**	Maes, R.K.
Project 1453	**Structure/Function Relationships In Chicken Globin And Histone Genes**	Dodgson, J.
Project 3116	**Bacterial Ecology—Diverse Energy Reactions And Regulation In Bacteria**	Uffen, R.L.
Project 3119	**Physiology Of Sporulation In The Bacillaceae**	Sadoff, H.L.
Project 3120	**Microbial Decomposition Of Organic Matter In Aquatic Systems**	Klug, M.J.
Project 3257	**Genetic Engineering Of Rhizobium Japonicum, The Soybean Symbiont, For Improved Agronomic Properties**	Chelm, B.K.
Project 6827	**Experimental Parasitology**	Williams, J.F.
Project 7513	**Recombinant DNA And Chemically Synthesized Vaccines Against Marek's Disease**	Velicer, L.F.

MSU-DOE Plant Research Lab

Project 1388	**Triazine Herbicide Resistance Caused By Chloroplast Membrane Changes**	Amtzen, C.J.
Project 1464	**Molecular Basis Of Disease Resistance To Powdery Mildew In Barley**	Somerville, C.R.
Project 8012	**Directed Genetic Modification Of RuBP Carboxylase/Oxygenase**	Somerville, C.R.
Project 8013	**Genetic Regulation Of The Rhizobium/Legume Symbiosis**	Chelm, B.K.

Packaging

Project 1405	**Transport Properties Of Plastics As Related To The Quality And Storage Stability Of Packaged Products**	Giacin, J.R.
Project 3108	**Control Of Damage And Loss In Distribution**	Goff, J.W.

Park & Recreation Resources

Project 340	**Park Facilities**	Moncrief, L.W.
Project 1105	**Recreation Use Of Private Lands—Its Role In Rural Development**	Moncrief, L.W.
Project 1378	**Recreation Resource Economics. The Relationship Between Agriculture And Tourism In Michigan**	Moncrief, L.W.
Project 1392*	**Impacts Of Tourism On Rural Economic Development**	Stynes, D.J.
Project 1432	**Impact Of Forest Management On Recreation And Tourism In Local Economics**	Holecek, D.F.
Project 1436	**Psychology Of Recreation And Tourism. The Relationship Between The People And The Resource**	Fridgen, J.D.
Project 3233	**Energy Relationships And Alternatives For Michigan's Recreation-Tourism Industry**	Fridgen, J.D.

Pathology

Project 1154*	**Prevention And Control Of Enteric Diseases Of Swine**	Waxler, G.L.
Project 1289	**Role Of Viatamin E And Selenium In Improving Livability Of Pigs**	Whitehair, C.K.
Project 1307	**Pathologic Effects Of Chemicals Of Importance To Michigan Agriculture**	Sleight, S.D.
Project 1333	**Mechanisms Of Pulmonary Damage In Neonatal Calves Exposed To Pasteurella Hemolytica Pathology**	Slocombe, R.F.
Project 6800	**Inherited Resistance To Neonatal Escherichia Coli Diarrhea In The Pig**	Waxler, G.L.

Pesticide Research Center

Project 1309	**Toxic Effect Of Chlorinated And Pyrethroid Pesticides**	Matsumura, F.
Project 1364	**North Central Leader Laboratory Program For Minor Use Pesticides Research, To Supplement The IR-4 Project**	Matsumura, F.
Project 1412	**Processes Affecting Pesticides And Other Organics In Soil And Water Systems**	Zabik, M.
Project 1414	**Fates And Effects Of Trace Contaminants In Aquatic Systems**	Giesy, J.P.
Project 1451	**Molecular Aspects Of Aluminum Toxicity In Plant Cells**	Haug, A.
Project 7509	**North Central Leader Laboratory Program For Minor Use Drug Research To Supplement The IR-4 Program**	Matsumura F.

Physiology

Project 122	**Physiologic Response Of Aquatic Organisms To Pollutants**	Fromm, P.O.
Project 887	**Neuroendocrine Control Of Lactation, Reproduction Mammary Tumors And Aging**	Meites, J.
Project 1404	**Control Of Fetal Growth In Domestic Farm Animals**	Walsh, S.W.
Project 1441	**Ocular And Neural Lesions To Aquatic Organisms Following Exposure To Selected Organophosphate Esters**	Hoffert, J.R.
Project 3097	**Effects Of Stress And Aging On Reproductive Control Systems**	Riegle, G.D.
Project 3259	**Toxic Effect Of Environmental Chemicals On Immune Responses Of Fish**	Fromm, P.O.
Project 6816	**Pathogenesis Of Ocular Diseases**	Hoffert, J.R.

Resource Development

Project 174	**Michigan's Water Resources**	Humphrys, C.R.
Project 1075	**Spatial Economic Analysis Of Natural Resources**	Chappelle, D.E.
Project 1093	**Assembly And Cataloging Of Primary And Secondary Data For Community Decision Making**	Kimball, W.J.
Project 1102	**Interaction And Conflicts Between Law And Government And Science And Technology**	Bronstein, D.A.
Project 1158	**Use Of Remote Sensing For Land Use Policy Formulation**	Schultink, G.
Project 1285	**Comprehensive Resources Inventory And Evaluation System**	Schultink, G
Project 3235	**Mineral Land Development, Energy Requirements And Environmental Impacts**	Kakela, P.J.

Sociology

Project 1062*	**Population Redistribution In The Non-Metropolitan Areas Of The North Central Region**	Beegle, J.A.
Project 3165	**Michigan County And Place Characteristics—1930-1980**	Harris, C.K.
Project 3222	**Changing Structure Of Agriculture**	Schwarzweller, H.
Project 3234	**Aspects Of Small Scale Primary Production In Michigan**	Harris, C.K.
Project 3263	**The Human Dimensions Of Toxic Materials In Michigan Agriculture**	Morrison, D.E.

List of MAES Contributors

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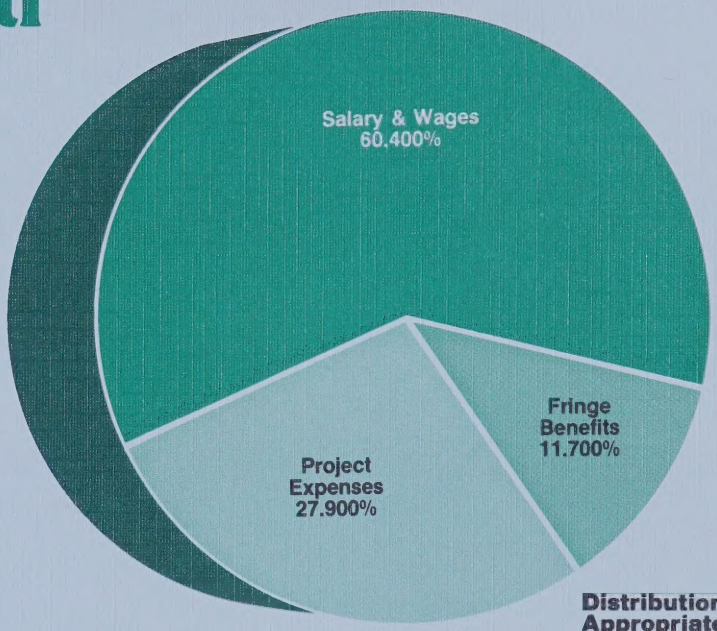
Financial Report

July 1, 1983
to
June 30, 1984



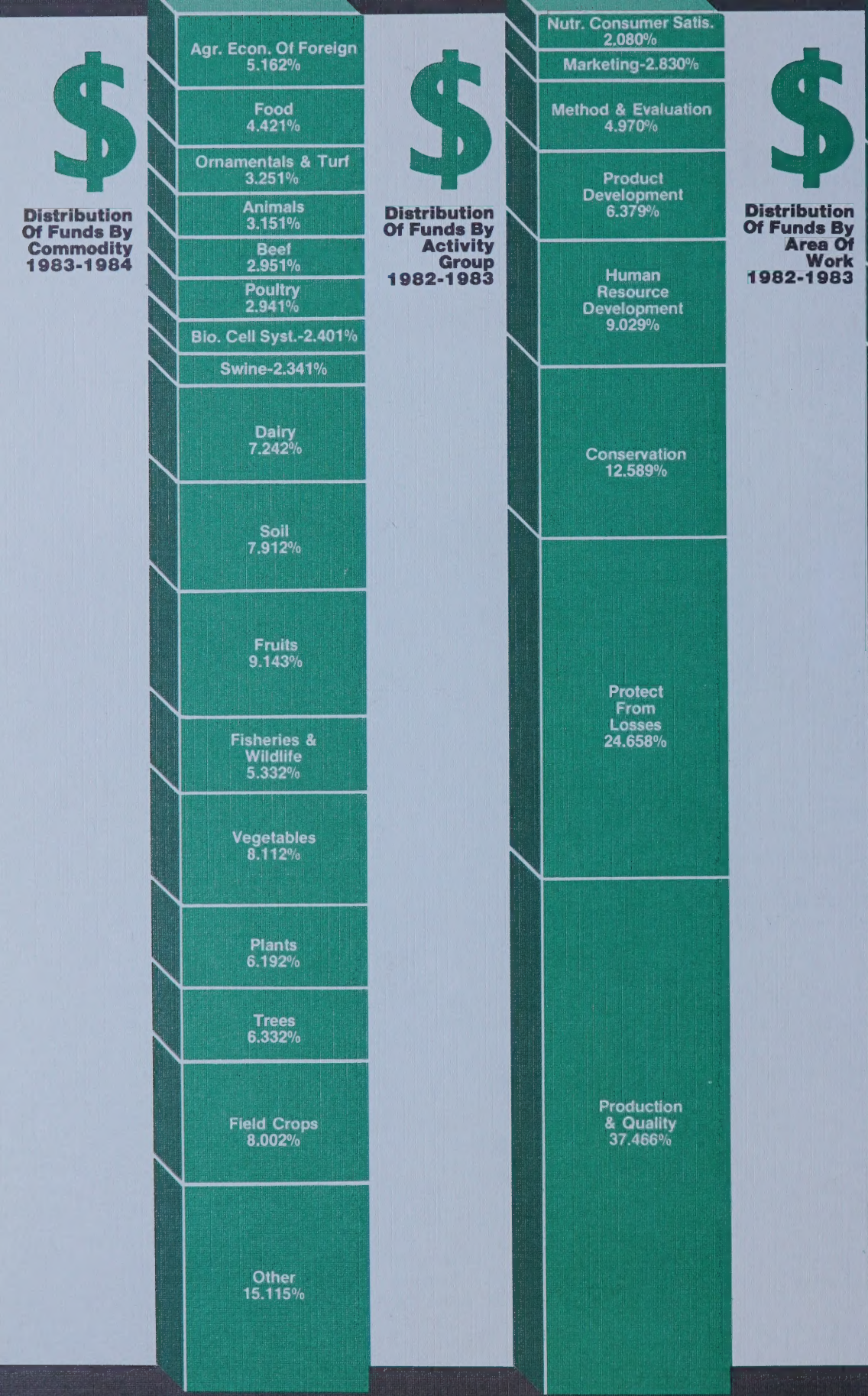
Distribution Of Appropriated Funds

INCOME:			**$28,827,220**
Federal Appropriations:		$4,340,716	
Hatch	$3,363,361		
McIntire Stennis	117,282		
Hatch RRF	751,675		
Hatch Animal Disease Research	108,398		
State Appropriations:		$14,441,670	
TOTAL APPROPRIATIONS:		$18,782,386	
Grants—Federal, State & Private		$10,044,834	
EXPENSES:			**$28,827,220**
Salaries	$11,343,196		
Fringe Benefits	2,191,039		
Project Expenses	5,248,151		
Grants—Federal, State & Private	$10,044,834		

Personnel

(Full Time Equivalence)

Research Staff	151	Support Staff	143
Professors	81	Administrative Professionals	47
Associate Professors	26	Supervisors	6
Assistant Professors	34	Clerical	49
Instructors	1	Technicians	41
Research Associates and Specialists	9		


Distribution Of Funds By Commodity 1983-1984
Agr. Econ. Of Foreign 5.162%
Food 4.421%
Ornamentals & Turf 3.251%
Animals 3.151%
Beef 2.951%
Poultry 2.941%
Bio. Cell Syst.-2.401%
Swine-2.341%
Dairy 7.242%
Soil 7.912%
Fruits 9.143%
Fisheries & Wildlife 5.332%
Vegetables 8.112%
Plants 6.192%
Trees 6.332%
Field Crops 8.002%
Other 15.115%
Distribution Of Funds By Activity Group 1982-1983
Nutr. Consumer Satis. 2.080%
Marketing-2.830%
Method & Evaluation 4.970%
Product Development 6.379%
Human Resource Development 9.029%
Conservation 12.589%
Protect From Losses 24.658%
Production & Quality 37.466%
Distribution Of Funds By Area Of Work 1982-1983
Human Resource Development 11.689%
Field & Forage Crops 9.199%
Consumer Health 5.119%
Fruits & Vegetables 20.348%
Conservation 19.718%
Animals & Animal Production 18.528%
Other 15.398%

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